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SEARCH FOR ISOTOPIC ANOMALIES IN ODESSA (IA), OCHANSK (H4), PLAINVIEW (H5), AND GLADSTONE (H6)

J. Yang and S. Epstein, *Division of Geological and Planetary Sciences, California Institute of Technology, Pasadena, CA 91125*

Both unusually D-rich hydrogen and ^{13}C-rich carbon have been found in Murchison acid residues (Swart *et al.*, 1983; Yang and Epstein, 1983, 1984). The ^{13}C-rich carbon ($\delta^{13}C \approx 1500‰$) was attributed to a stellar condensate and the D-rich hydrogen to ion-molecule enrichment

Table 1
The concentrations and isotopic data of H and C released by stepwise oxidation-pyrolysis of acid residues of meteorites

Sample*	T† °C	H_2 μmoles/g‡	δD	CO_2 μmoles/g‡	$\delta^{13}C$	C/H
Ochansk CFO	(350)	2.91	−10	0.59	−25.7	0.10
1.03%	700	0.85	−76	32.7	−25.6	19
167 mg	800	0.29	−148	3.1	−25.3	5.3
	900	~ 0.04	~ −190	0.12	−34.7	~ 2
	1100	~ 0.08	~ −217	0.21	−22.2	~ 1
	Total	4.17	−39	36.7	−25.6	4.4
Plainview CFO	(350)	0.62	−50	0.18	−22.5	0.15
0.84%	800	0.18	−56	11.5	−17.3	32
191 mg	900	~ 0.02	~ −196	0.044	~ −55	~ 1
	1100	~ 0.02	~ −177	~ 0.003	~ 50	~ 0.1
	Total	0.84	−58	11.7	−17.5	7.0
Gladstone CFO	(350)	4.56	−9	0.35	−28.8	0.038
1.02%	800	1.32	−68	13.1	−22.9	5.0
132 mg	900	~ 0.09	−206	0.17	−8.8	~ 0.9
	1100	~ 0.05	~ −280	0.31	−25.1	~ 3
	Total	6.02	−27	13.9	−22.9	1.2
Odessa CFO	(350)	1.09	−59	1.1	−24.4	0.50
0.37%	700	0.63	−106	45	−6.2	36
22.4 mg	800	0.28	−68	201	−4.7	360
	900	~ 0.02	~ −62	~ 0.026	~ −31	~ 0.7
	1100	~ 0.07	~ −39	~ 0.012	~ 31	~ 0.1
	Total	2.09	−74	247	−5.1	59
Odessa CFOP	(350)	0.58	~ −17	0.48	−19.5	0.41
0.32%	700	0.61	~ −5	55	−5.4	45
173 mg	800	0.20	−216	42	−5.0	105
	900	0.18	−160	18	−5.3	51
	900	0.12	−209	120	−4.8	480
	900	< 0.02	—	2.6	−4.7	> 65
	1000	< 0.01	—	0.015	~ 19	> 0.7
	1100	< 0.01	—	0.031	~ 12	> 1.5
	Total	1.69	−65	238	−5.0	70

Above 5 samples contain total nitrogen of 0.1-0.2 μmoles/g and total sulfur of 0.01-2 μmoles/g.
*C≡HCl, F≡HF, O≡H_2O_2, $HNO_3$2, NaOH-NaOCl, $HClO_4$, P≡boiling $HClO_4$.
†T in parentheses represents the heating step without oxygen.
‡Yields are given in μmoles/gram of bulk meteorites.